

REMARKS

Claims 1-80 were pending in the subject U.S. patent application. Claims 1-80 as filed were subjected to a Restriction/Election Requirement. In response to the Restriction/Election Requirement, applicants elected claims 11-26 and 71-80 for prosecution. Claims 11-26 and 71-80 are now pending and have been examined.

The United States Patent and Trademark Office (hereinafter the "Patent Office") has objected to the specification upon the assertion that the abstract of the disclosure is not descriptive of the claimed subject matter and is not in proper English, based on the contention that the present abstract is a sentence fragment.

The Patent Office has objected to the specification upon the contention that the disclosure contains an embedded hyperlink on page 58, line 7. Applicants have amended the specification to remove this hyperlink. A marked up copy of the paragraph containing the objected to text is provided hereinabove. In the marked up copy, the text containing the hyperlink is to be deleted (indicated by the strike through), and the text to be added is indicated with double underlining to distinguish it from the underlining that was already present in the text to be deleted.

Claims 25 and 26 have been objected to under 37 CFR § 1.75(c) upon the contention that the claims are in improper dependent form for failing to further limit the subject matter of a previous claim.

Claims 26, 71, 72, and 74 have been objected to for informal matters.

Claims 11-26 and 71-80 have been rejected under 35 U.S.C. § 101 upon the contention that the claimed invention is not supported by either a substantial asserted utility or a well-established utility.

Claims 11-26 and 71-80 have been rejected under 35 U.S.C. § 112, first paragraph, upon the contention that since the claimed invention is not supported by either a substantial utility or a well established utility, one of skill in the art would not know how to make and use the claimed invention.

Claims 11-26 and 71-80 have been rejected under 35 U.S.C. § 112, first paragraph, upon the contention that the claims contain subject matter that was not described in the specification in such a way as to reasonably convey

to one skilled in the relevant art that the inventors had possession of the claimed invention at the time the application was filed.

Claims 16, 18, 19, 25, 26, and 74-77 have been rejected under 35 U.S.C. § 112, second paragraph, upon the contention that these claims are indefinite. The Patent Office asserts that the use of the following phrases renders the claims ambiguous: "hybridized to a nucleic acid sequence" in claim 16; "defined as positions under the control of a promoter" in claim 18; "said DNA segment" in claim 19; "a nucleotide sequence" in claim 74(a), "substantial similar to" in claim 74(b), and "resistance characteristic" in claim 75. Additionally, the Patent Office contends that claim 25 is indefinite because it is unclear if the transgenic plant comprises the isolated nucleic acid of claim 11 further comprising an isolated soybean Rhg4 gene as in claim 23, upon which claim 25 depends. Claim 26 is asserted to be indefinite because it does not obviate the alleged indefiniteness of claim 25, and it is unclear if the claimed seeds, parts, or progeny of the claim of claim 25 comprise the isolated gene(s), or if Applicants intend to claim any, non-transgenic seeds or progeny thereof.

The Patent Office has indicated that claims 11-26 and 71-80 are free of the prior art, "which neither teaches nor fairly suggests an isolated and purified nucleic acid molecule encoding a biologically active SCN and SDS resistance polypeptide/gene product". Official Action at page 13.

The specification and claims 11, 13-15, 18-19, 23-26, 71-75, and 79 have been amended. Claims 12 and 16 have been canceled. Support for the amendments can be found throughout the specification as filed, including in the claims. No new matter has been introduced as a result of the amendments to the specification or to the claims.

Response to the Objection to the Abstract

The Patent Office has objected to the specification upon the assertion that the abstract of the disclosure is not descriptive of the claimed subject matter and is not in proper English – the present abstract asserted to be a sentence fragment. After careful consideration of the objection, applicants respectfully traverse the objection and submit the following remarks.

The Patent Office first asserts that the abstract is not descriptive of the claimed subject matter. Applicants respectfully submit that the Abstract is not expected to be descriptive of the claimed subject matter, but rather of the technical disclosure of the specification as a whole. See MPEP § 608.01(b). As such, applicants respectfully submit that the abstract as filed conforms with the requirements of MPEP § 608.01(b) as the specification as a whole discloses the subject matter outlined in the abstract: namely, soybean cyst nematode and soybean sudden death syndrome resistance genes, soybean cyst nematode and soybean sudden death syndrome resistant plant lines, and methods of breeding and engineering the same.

The Patent Office next asserts that the abstract is a sentence fragment and thus is not in proper English. Applicants respectfully submit, however, that MPEP § 608.01(b) does not require that the abstract be a complete sentence. The Patent Office is directed to the “**Sample Abstracts**” subheading of MPEP § 608.01(b), in which the first line of each of Examples (1) and (2) is not a complete sentence.

Applicants respectfully submit, therefore, that the Abstract is in compliance with MPEP § 608.01(b). Accordingly, applicants respectfully request that the objections to the abstract be withdrawn.

Response to the Objection to the Specification

The Patent Office has objected to the specification upon the contention that the disclosure contains an embedded hyperlink on page 58, line 7. Applicants have amended the specification to remove this hyperlink. A marked up copy of the paragraph containing the objected to text is provided hereinabove. In the marked up copy, the text containing the hyperlink is to be deleted (indicated by the strike through), and the text to be added (which adds website information not in the form of a hyperlink) is indicated with double underlining to distinguish it from the underlining that was present in the text to be deleted.

Applicants respectfully submit that the replacement paragraph provided removes the hyperlink, and thus applicants respectfully submit that the specification as amended is compliance with MPEP § 608.01. Accordingly,

applicants respectfully request that the objection to the specification be withdrawn.

Responses to the Claim Objections

Claims 25 and 26 have been objected to under 37 CFR § 1.75(c) upon the contention that the claims are in improper dependent form for failing to further limit the subject matter of a previous claim. According to the Patent Office, "claims 25 and 26 are directed to a different scope than that of claim 23, the which they depend, because at claim 25 there is no indication that the transgenic plant comprises the nucleic acid molecule of claim 23, only a component of the claimed nucleic acid comprising an isolated soybean *Rhg4* gene". Official Action at page 3. After careful consideration of this objection and the Patent Office's basis therefor, applicants respectfully traverse the objection and submit the following remarks.

Addressing claim 25 first, claim 25 recites the following: "A transgenic plant comprising the isolated soybean *Rhg4* gene of claim 23". It has come to the attention of the applicants that claim 25 as filed improperly recites the isolated nucleic acid of claim 23, when it should recite the isolated nucleic acid of claim 24. Thus, applicants have amended claim 25 to recite "A transgenic plant comprising an isolated soybean *Rhg4* nucleic acid comprising a nucleic acid sequence selected from the group consisting of: (a) the nucleotide sequence of any one of SEQ ID NOs:16-19; (b) a nucleotide sequence substantially identical to any one of SEQ ID NOs:16-19; or (c) a nucleotide sequence that hybridizes to one of SEQ ID NOs: 16-19 under wash stringency conditions represented by a wash solution having about 200 mM salt concentration and a wash temperature of at least about 45°C, and that encodes an SCN/SDS resistance polypeptide.". Elements (a) – (c) are the elements found in claim 24, and thus applicants respectfully submit that the support for the amendment can be found directly in claim 24. Thus, applicants respectfully submit that the nature of the transgenic plant comprising the isolated gene has been clarified, and that the objection to claim 25 has been addressed.

Turning now to claim 26, claim 26 recites "Seeds, parts or progeny of a plant as claimed in claim 25". Claim 26 has been amended to recite "Seeds,

parts, or progeny of the transgenic plant of claim 25, wherein the seeds, parts, or progeny comprise the isolated soybean *Rhg4* nucleic acid". This amendment is presented solely to more particularly point out and distinctly claim the subject matter. Applicants respectfully submit that this amendment in combination with the amendment to claim 25 clarifies the subject matter sought to be claimed in claim 26.

Accordingly, applicants respectfully submit that the objections to claims 25 and 26 have been addressed. Applicants therefore respectfully request that the objections to claims 25 and 26 be withdrawn.

Claims 26, 71, 72, 74, and 79 have been objected to for certain informalities. The Patent Office has offered suggestions as to how to address the informalities, and these claims have been amended adopting the Patent Examiner's suggestions. Applicants would like to thank the Examiner Kruse for offering his suggestions for clarifying the language in these claims.

Accordingly, applicants respectfully submit that the objections to claims 26, 71, 72, 74, and 79 have been addressed, and respectfully request the withdrawal of the objections to these claims.

Response to the Claim Rejection under 35 U.S.C. § 101

Claims 11-26 and 71-80 have been rejected upon the contention that the claimed invention is not supported by either a substantial asserted utility or a well-established utility. According to the Patent Office, SEQ ID NO: 13 comprises undefined nucleotides, and "hence it would require additional experimentation to isolate the complete coding sequence and to conform the function of the claimed isolated nucleic acids as claimed". Official Action at page 5. Furthermore, the Patent Office contends that "the art teaches that SCN resistance associated with the locus *rhg1* on linkage Group G is a recessive gene... which in the meaning of the art is that said locus comprises a nonfunctional gene either not expressed or encodes a nonfunctional protein". Official Action at page 5 (citation omitted). The Patent Office thus concludes that "it is unclear from the teachings of the instant specification what utility a recessive gene would have to one of skill in the art in a method of making a transgenic plant as claimed in the instant invention". Id.

After careful consideration of the rejection and the Patent Office's bases therefor, applicants respectfully traverse the rejection and submit the following.

Initially, applicants respectfully submit that claims 14-16, 73, and 74 have been amended, and the nucleotides and amino acids sequences are specifically recited in the amended claims. Support can be found in the Sequence Listing as filed, among other places.

Applicants respectfully traverse the Patent Office's assertion that the art teaches that SCN resistance associated with *rhg1* is a recessive gene. The cited reference, Rao-Arelli *et al.* (1992) 32 *Crop Science* 862-864 (hereinafter "Rao-Arelli") only teaches that *rhg1* might be recessive, and further reported that data in the F2 generation would also fit either a co-dominant or dominant role, and it was just that the recessive model was the best fit. Applicants also direct the Patent Office's attention to page 864, paragraph 3, of Rao-Arelli, in which it is stated that the F3 data did not fit either the 2 or 3 gene recessive action hypothesis. Furthermore, these same authors later published another article that stated that *rhg1* might be co-dominant (see Mansur *et al.* (1992) Generation mean analysis of resistance to race 3 of the soybean cyst nematode. 33 *Crop Science* 1249-1253). And finally, Table 6 in Meksem *et al.* (2001, 103 *Theor Appl Genet* 710-717) clearly shows the expected 1:2:1 segregation ratio for the number of cysts on roots (FI) that would be expected for a fully co-dominant gene. Applicants respectfully submit, therefore, that one of ordinary skill in the art would have understood *rhg1* to be a co-dominant gene. Accordingly, applicants respectfully submit that a nucleic acid encoding an *rhg1* polypeptide would have substantial utility in the making of a transgenic plant.

Given the utility shown for a nucleic acid encoding an *rhg1* polypeptide, applicants respectfully submit that claim 11, which in one embodiment recites such a nucleic acid, is directed to patentable subject matter within the meaning of 35 U.S.C. § 101. Applicants further respectfully submit that claim 71, which recites the production of a transgenic plant, also is directed to patentable subject matter. Claims 12-26 and 72-80 depend directly or indirectly from claims 11 and 71, respectfully, and thus are also directed to

patentable subject matter. Applicants therefore respectfully request that the rejection under 35 U.S.C. § 101 of claims 11-26 and 71-80 be withdrawn.

Response to the Claim Rejections under 35 U.S.C. § 112, First Paragraph

Response to the First Rejection

Claims 11-26 and 71-80 have been rejected under 35 U.S.C. § 112, first paragraph, upon the contention that since the claimed invention is not supported by either a substantial utility or a well established utility, one of skill in the art would not know how to make and use the claimed invention. The Patent Office thus makes 3 assertions related to this rejection:

- (a) it would have required undue trial and error experimentation by one of skill in the art at the time of Applicant's invention to screen through a myriad of nucleic acids from a myriad of plants having resistance to SCN and SDS, even within linkage Group G of a soybean having both SCN and SDS resistance to identify a nucleic acid that encodes a polypeptide that confers both SCN and SDS resistance.
- (b) it would have required undue trial and error experimentation by one of skill in the art at the time of Applicants' invention to further isolate a soybean *Rhg4* gene capable of conveying *Heterodera glycines*-infestation resistance that is located within a quantitative trait locus.
- (c) it would have required undue trial and error experimentation by one of skill in the art at the time of Applicants' invention to overcome the dominance of the *Rhg1* locus on linkage Group G of a susceptible soybean plant in order to make and use the claimed transgenic plant and practice the claimed method of providing a resistance trait to a plant as claimed.

See Official Action at page 8. After careful consideration of this rejection and the Patent Office's bases for the rejection, applicants respectfully traverse the rejections and submit the following.

With respect to the first contention, it appears that the Patent Office is basing this rejection on the 35 U.S.C. § 101 rejection presented and discussed hereinabove. The Patent Office's attention is directed to that discussion, wherein applicants have fully addressed the utility rejection

presented. Applicants respectfully submit that since the utility rejection was premised on an incomplete assessment of the art, the utility rejection was improper. Accordingly, applicants respectfully submit that the isolated and purified nucleic acids disclosed in the instant application do encode a biologically active SCN/SDS resistance peptide, as the *rhg1* gene is not recessive (and thus is properly termed *Rhg1*) as asserted by the Patent Office.

Additionally, the Patent Office states that "it would have required undue trial and error experimentation by one of skill in the art at the time of Applicant's invention to screen through a myriad of nucleic acids from a myriad of plants having resistance to SCN and SDS, even within linkage Group G of a soybean having both SCN and SDS resistance to identify a nucleic acid that encodes a polypeptide that confers both SCN and SDS resistance". Official Action at page 8 (emphasis added). Applicants respectfully submit that the Patent Office has mistakenly interpreted the claims to recite nucleic acids that confer both SCN and SDS resistance. The claims employ the phrase "SCN/SDS resistance", which the Patent Office appears to believe refers to both SCN and SDS resistance. However, according to the specification as filed, "the term 'SCN/SDS resistance or 'SCN/SDS resistance trait' as used herein refers to a cellular or organismal capacity for resistance to nematode or fungal infection, or both". See specification at page 22, line 23, through page 23, line 1. As such, applicants respectfully submit that it is not necessary that a nucleic acid molecule of the presently disclosed subject matter to confer both SCN and SDS resistance.

Furthermore, applicants respectfully submit that the guidance for identifying and isolating a nucleic acid encoding an SCN/SDS resistance polypeptide is sufficient, contrary to the contentions of the Patent Office on page 7 of the Official Action. Indeed, when taken together, Examples 3 and 4 clearly demonstrate to the skilled artisan the identification and isolation of a nucleic acid encoding an SCN/SDS resistance polypeptide.

The Patent Office next asserts that the instant application does not teach a soybean *Rhg4* gene, only how to possibly isolate such a nucleic acid. The Patent Office contends that "the art teaches that ultimately the function of any DNA sequence, whose identity is based solely on homology, can only be

proven in experiments designed to evaluate that function (see Duggleby 1997, Gene 190:245-249, page 248, left column, last paragraph)". Official Action at page 7. Applicants respectfully submit, however, that the Duggleby reference is not applicable to the instant claims. Duggleby and co-workers were using cross-species homology, and further the homology observed was at a much lower level than exists between the *Rhg1* and *Rhg4* sequences disclosed in the instant application as SEQ ID NOs:13 and 16-19, respectively. While one of ordinary skill in the art might not be persuaded that the functions of the "homologous" genes examined in the Duggleby reference would be the same, it is respectfully submitted that the skilled artisan would conclude that two different genes from the same species that show over 98% nucleotide identity (e.g. 640/648 nucleotide identity between SEQ ID NO: 13 and SEQ ID NO: 16) would encode polypeptides with similar function.

Continuing with the present rejection, the Patent Office next contends that the specification does not teach how to use the claimed method for providing resistance to a plant other than soybean because "the construct used in the claimed method would not have a functional use in any other plant than soybean". Official Action at page 7. Applicants respectfully traverse this assertion as unsupported by any scientific reasoning. As such, applicants respectfully submit that a prima facie case of failure to comply with 35 U.S.C. § 112, first paragraph, has not presented with respect to this rejection. Accordingly, applicants respectfully request that this rejection be withdrawn.

The Patent Office next reiterates the assertion that the art taught that the SCN resistance associated with *Rhg1* is a recessive gene. Applicants respectfully reiterate that this contention is incorrect and the publications cited by the Patent Office do not stand for the proposition advanced. As outlined in more detail hereinabove, the authors of the Rao-Arelli reference have since clarified that *Rhg1* might be co-dominant (as Applicants have since shown). Furthermore, applicants respectfully submit that the Meksem *et al.* reference cited by the Patent Office does not suggest that *Rhg1* is recessive. It states, "One locus, on linkage Group G, is common among sources of resistance to SCN and is thought to correspond to *rhg1* that was identified by classical genetics as a recessive gene". (Meksem *et al.* (2001) 103 *Theor Appl Genet* 710-717, at page 711). The article cites the Rao-Arelli article for this

proposition, and it has already been shown that the Rao-Arelli article was incorrect in determining *Rhg1* to be recessive. Thus, applicants respectfully submit that since *Rhg1* has been shown to be co-dominant, it would not be necessary to "overcome the dominance of the *Rhg1* locus" as asserted by the Patent Office.

In summary, applicants respectfully submit that the instant rejection of claim 11-26 and 71-80 has been addressed. Accordingly, applicants respectfully request the withdrawal of the instant rejection.

Response to the Second Rejection

Claims 11-26 and 71-80 have also been rejected under 35 U.S.C. § 112, first paragraph, upon the contention that the claims contain subject matter that was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventors had possession of the claimed invention at the time the application was filed. The Patent Office concedes that the specification describes an isolated nucleic acid having the sequence of SEQ ID NO: 13 and a polypeptide having the amino acid sequence of SEQ ID NO: 14. The Patent Office also concedes that AFLP markers associated with the soybean *Rhg4* gene at linkage group A2 mapped by AFLP markers are also described. After careful consideration of the rejection and the Patent Office's bases therefore, applicants respectfully traverse the rejection and offer the following.

The Patent Office relies on *University of California v. Eli Lilly* (43 USPQ2d 1398, Fed. Cir. 1997) for the proposition that "the disclosure of a process for obtaining cDNA from a particular organism and the description of the encoded protein fail to provide an adequate written description of the actual cDNA from that organism which would encode the protein from that organism, despite the disclosure of a cDNA encoding that protein from another organism". Official Action at pages 9-10. The Patent Office also cites MPEP § 2163 for the proposition that "an invention may not be adequately described where an invention is described solely in terms of a method of making coupled with its function and there is no described or art-recognized correlation or relationship between the structure of the invention and its function". Official Action at page 10. According to the Patent Office,

A biomolecule sequence described only by a functional characteristic, without any known or disclosed correlation between that function and the structure of the sequence, normally is not a sufficient identifying characteristic for written description purposes, even when accompanied by a method of obtaining the claimed sequence.

Official Action at page 10.

Applicants respectfully submit, however, that the authorities relied on by the Patent Office are not applicable to the present case. Addressing *Eli Lilly* first, applicants respectfully submit that the *Eli Lilly* case does not provide as broad an interpretation as the Patent Office is currently giving it. In *Eli Lilly*, the patentees attempted to claim all vertebrate insulin genes based on the disclosure of the rat insulin gene sequence plus a method of isolating the genes from other species. While it could be argued that using the teachings of the patent asserted in *Eli Lilly* it would have been within the skill of the ordinary artisan to have isolated insulin genes from closely related species, even this is not what the instant applicants are proposing. Claim 11 has been amended to recite an isolated and purified soybean nucleic acid molecule encoding a biologically active SCN/SDS resistance polypeptide. The Patent Office concedes that the specification describes an isolated nucleic acid having the sequence of SEQ ID NO: 13. Applicants respectfully submit that SEQ ID NO: 13 represents a sequence encoding a biologically active SCN/SDS resistance polypeptide.

Applicants respectfully submit that the citation to MPEP § 2163 is also inappropriate in the instant case. MPEP § 2163 is asserted to state that "an invention may not be adequately described where an invention is described solely in terms of a method of making coupled with its function and there is no described or art-recognized correlation or relationship between the structure of the invention and its function". Official Action at page 10. However, MPEP § 2163 appears to be prohibiting a description of the invention limited only to a method of making coupled with function. Applicants respectfully submit that the instant specification contains not only a method of making plus a description of function, but also explicit disclosure of nucleic acid sequence

data and other data for nucleic acids encoding polypeptides with those functions.

And finally, the Patent Office's contention that "a biomolecule sequence described only by a functional characteristic, without any known or disclosed correlation between that function and the structure of the sequence, normally is not a sufficient identifying characteristic for written description purposes, even when accompanied by a method of obtaining the claimed sequence" is similarly inapplicable. In the instant specification, the biomolecule is not described solely by a functional characteristic. Sequence data for the genes themselves is also included. Applicants further respectfully submit that between SEQ ID NO: 13, which corresponds to *Rhg1* and any one of SEQ ID NOs: 16-19, which correspond to *Rhg4*, there is over 98% sequence identity. Applicants submit that one of ordinary skill in the art would recognize that there is a disclosed correlation between the function described and the structure of the sequence.

The Patent Office also concedes that the specification describes AFLP markers associated with the soybean *Rhg4* gene at linkage group A2 mapped by AFLP markers. Applicants respectfully submit, however, that SEQ ID NOs: 16-19 disclose soybean *Rhg4*. Applicants respectfully submit that given the teachings of the instant specification in conjunction with the soybean *Rhg4* gene sequences explicitly disclosed in SEQ ID NOs: 16-19, it would have been apparent to the ordinary artisan that applicants were in possession of the claimed subject matter.

Applicants also respectfully submit that as disclosed in the specification of the instant application, the genomic clone described in the specification containing the soybean *Rhg4* gene is available from the Forrest BAC library described in Meksem *et al.* (2000, 101 *Theor Appl Genet* 747-755) through Southern Illinois University-Carbondale (Carbondale, Illinois), Texas A&M University BAC center (College Station, Texas), and Research Genetics (Huntsville, Alabama).

Accordingly, applicants respectfully submit that the rejection of claims 11-26 and 71-80 under 35 U.S.C. § 112, first paragraph, has been addressed. Applicants further submit that the claims are in condition for allowance at this time, and respectfully request a Notice of Allowance to that effect.

Response to the Second Rejection under 35 U.S.C. § 112, Second Paragraph

Claims 16, 18, 19, 25, 26, and 74-77 have been rejected under 35 U.S.C. § 112, second paragraph, upon the contention that the claims fail to particularly point out and distinctly claim the subject matter that applicants regard as the invention. Applicants have carefully considered the rejections and the Patent Office's bases for the rejections, and respectfully traverse the rejections and submit the following.

Claim 16 has been rejected upon the contention that the phrase "hybridizes to a nucleic acid sequence" is indefinite because it is unclear what the metes and bounds of "a nucleic acid sequence" are because such a sequence can encompass a nucleic acid dimer. Applicants have canceled claim 16, and thus the rejection of this claim under 35 U.S.C. § 112, second paragraph, is believed to have been rendered moot.

Applicants have amended claim 14 to recite the subject matter encompassed by canceled claim 16. In an abundance of caution, applicants hereby respond to the mooted rejection of claim 16 with reference to amended claim 14. Applicants respectfully submit that amended claim 14 recites the nucleic acid molecule of claim 11, further defined as a nucleic acid molecule comprising a nucleotide sequence selected from the group consisting of comprising... (c) a single stranded nucleic acid molecule that hybridizes to a nucleic acid molecule comprising the reverse complement of the nucleotide sequence set forth in SEQ ID NO:13 under wash stringency conditions represented by a wash solution having about 200 mM salt concentration and a wash temperature of at least about 45°C, and that encodes an SCN/SDS resistance polypeptide. As such, applicants submit that claim 14(c) recites a nucleic acid molecule that hybridizes to a nucleic acid molecule comprising the nucleotide sequence of SEQ ID NO:13 under the stated conditions. Applicants submit that the amended claim clearly and succinctly points out the claimed subject matter, and thus respectfully submit that the rejection of claim 16 under 35 U.S.C. § 112, second paragraph, would be improper.

Claim 18 has been rejected for the use of the phrase "defined as positioned under the control of a promoter". According to the Patent Office, the metes and bounds of "positioned" is unclear. Applicants respectfully

submit that the phrase “positioned under the control of a promoter” would be understood by one of ordinary skill in the art to mean that the promoter and the nucleic acid molecule of claim 11 are operatively linked: *i.e.* the promoter directs transcription of the nucleic acid molecule of claim 11. Claim 18 has been amended to reflect this. As a result of the amendment to claim 18, applicants respectfully submit that the rejection of this claim has been addressed. Applicants respectfully request the withdrawal of the rejection of claim 18 under 35 U.S.C. § 112, second paragraph.

Claim 19 has been rejected upon the contention that the phrase “said DNA segment” lacks antecedent basis. Claim 19 has been amended to replace the phrase “said DNA segment” with “said nucleic acid molecule”, the latter of which finds antecedent basis in claim 18, the claim upon which claim 19 depends. As a result of the amendment, applicants respectfully submit that the rejection of this claim has been addressed. Applicants respectfully request the withdrawal of the rejection of claim 19 under 35 U.S.C. § 112, second paragraph.

Claim 25 has been rejected upon the contention that it is unclear if the transgenic plant comprises the isolated nucleic acid molecule of claim 11 further comprising an isolated soybean *Rhg4* gene as in claim 23, upon which claim 25 depends. Applicants have amended claim 25 to recite the isolated soybean *Rhg4* gene as in claim 24. Applicants respectfully submit that as a result of the amendment, the rejection of this claim has been addressed. Applicants respectfully request the withdrawal of the rejection of claim 25 under 35 U.S.C. § 112, second paragraph.

Claim 26 has been rejected upon the contention that it is not clear if the claim encompasses any non-transgenic seeds or progeny thereof. Applicants respectfully submit that claim 26 depends from claim 25, and amended claim 25 recites a transgenic plant comprising an isolated soybean *Rhg4* nucleic acid comprising a nucleic acid sequence selected from the group consisting of: (a) the nucleotide sequence of any one of SEQ ID NOs:16-19; (b) a nucleotide sequence substantially identical to any one of SEQ ID NOs:16-19; or (c) a nucleotide sequence that hybridizes to one of SEQ ID NOs: 16-19 under wash stringency conditions represented by a wash solution having about 200 mM salt concentration and a wash temperature of at least about

45°C, and that encodes an SCN/SDS resistance polypeptide. Amended claim 26 recites seeds, parts or progeny of the transgenic plant of claim 25, wherein the seeds, parts, or progeny comprise the isolated soybean *Rhg4* nucleic acid. Thus, applicants submit that claim 26 recites seeds, parts, or progeny of the transgenic plant and further recite that said seeds, parts, or progeny comprise the isolated *Rhg4* gene. Thus, the seeds, parts, or progeny are also transgenic. Accordingly, applicants respectfully submit that the rejection of claim 26 has been addressed, and respectfully request the withdrawal of the rejection of claim 26 under 35 U.S.C. § 112, second paragraph.

Claim 74 has been rejected for the use of the phrase “a nucleotide sequence” upon the contention that such a sequence can encompass a nucleic acid dimer. Applicants have amended claim 71, the claim upon which claim 74 depends, to recite a method for providing a resistance trait to a soybean plant, the method comprising introducing into said plant a construct comprising a nucleic acid molecule comprising a nucleic acid sequence encoding an SCN/SDS resistance gene product operatively linked to a promoter, wherein production of the SCN/SDS resistance gene product in the plant provides SCN or SDS resistance trait to the plant. As such, claim 74(a) recites that the nucleic acid sequence comprises the nucleotide sequence set forth as nucleotides 1-1830 of SEQ ID NO:13. Accordingly, applicants respectfully submit that this rejection of claim 74 has been addressed, and respectfully request the withdrawal of this rejection of claim 74 under 35 U.S.C. § 112, second paragraph.

Claim 74 has also been rejected upon the contention that the phrase “substantially similar to” is indefinite. Applicants have amended claim 74(b) to recite a nucleotide sequence substantially identical to nucleotides 1-1830 of SEQ ID NO:13. The specification defines “substantially identical” as “two or more sequences or subsequences that have at least 60%, preferably 80%, more preferably 90-95%, and most preferably at least 99% nucleotide or amino acid sequence identity, when compared and aligned for maximum correspondence, as measured using one of the [disclosed] sequence comparison algorithms”. See specification at page 27, lines 16-20. Accordingly, applicants respectfully submit that this rejection of claim 74(b)

has been addressed, and respectfully request the withdrawal of this rejection of claim 74(b) under 35 U.S.C. § 112, second paragraph.

Claim 75 has been rejected upon the contention that the phrase "resistance characteristic" lacks proper antecedence in claim 71. Applicants have amended claim 75 to replace the term "characteristic" with "trait". Applicants respectfully submit that the phrase "resistance trait" appears in claim 71, and thus proper antecedent basis exists for this phrase. Accordingly, applicants respectfully submit that the rejection of claim 75 has been addressed, and respectfully request the withdrawal of the rejection of claim 75 under 35 U.S.C. § 112, second paragraph.

In summary, applicants respectfully submit that the rejections of claims 16, 18, 19, 25, 26, and 74-77 under 35 U.S.C. § 112, second paragraph, have been addressed. Applicants further submit that claims 16, 18, 19, 25, 26, and 74-77 are now in condition for allowance, and respectfully request a Notice of Allowance to that effect.

CONCLUSIONS

As a result of the amendments to the specification and claims and the remarks provided herein, applicants respectfully submit that claims 11-26 and 71-80 are in condition for allowance. Applicants respectfully request a Notice of Allowance to that effect. Should there be any minor issues outstanding in this matter, Examiner Kruse is respectfully requested to telephone the undersigned attorney. Early passage of the subject application to issue is earnestly solicited.

Deposit Account

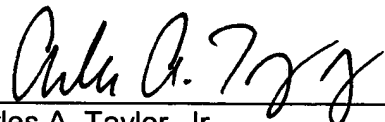
The Commissioner is hereby authorized to charge any deficiency or credit any overpayment associated with the filing of this correspondence to Deposit Account Number 50-0426.

Respectfully submitted,

JENKINS, WILSON & TAYLOR, P.A.

Date: 11/7/2003

By:


Arles A. Taylor, Jr.
Registration No. 39,395

Customer No. 25297
1268/4/2 AAT/CP/ptw